PATENT COOPERATION TREATY

To:

YOU ME PATENT AND LAW FIRM
Teheran Bldg., 825-33,
Yoksam-dong, Kangnam-ku,
Seoul 135-080
Republic of Korea

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)*	8 February 2005 (08.02.2005)
Applicant's or agent's file reference: OPP040160KR	FOR FURTHER ACTION: See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority Date *(day/month/year)*
PCT/KR 2004/002749	29 October 2004 (29.10.2004)	29 October 2003 (29.10.2003)

International Patent Classification (IPC) or both national classification and IPC
G02F 1/1365, 1/1343

Applicant
SAMSUNG ELECTRONICS CO., LTD.

1. This opinion contains indications relating to the following items:

- [x] Cont. No. I — Basis of the opinion
- [ ] Cont. No. II — Priority
- [ ] Cont. No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Cont. No. IV — Lack of unity of invention
- [x] Cont. No. V — Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Cont. No. VI — Certain documents cited
- [ ] Cont. No. VII — Certain defects in the international application
- [ ] Cont. No. VIII — Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ AT
Austrian Patent Office
Dresdner Straße 87, A-1200 Vienna

Facsimile No. +43 / 1 / 534 24 / 535

Authorized officer
GRONAU E.

Telephone No. +43 / 1 / 534 24 / 320

Continuation No. I

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims **1-9**	**YES**
	Claims **----**	**NO**
Inventive step (IS)	Claims **1-9**	**YES**
	Claims **----**	**NO**
Industrial applicability (IA)	Claims **1-9**	**YES**
	Claims **----**	**NO**

2. Citations and explanations:

The following documents are cited in the search report:

D1: JP 8-022033 A

D2: JP 2003-167259 A

D3: JP 2000-111956 A

The cited references relating to thin film diode (TFD) panels for LCD devices represent a state of the art as mentioned in the introductory part of the present application.

Each picture element of the TFD panel according to D1 comprises two display electrodes and two MIM diodes connected to these display electrodes. Either the area of the two display electrodes or the area of the two MIMs may be made different. Therefore, the electrical potential difference impressed on the first MIM is different than the electrical potential difference impressed on the second MIM. By this, the rate of change of a capacitor factor can be enlarged and the viewing-angle property can be improved. As stated in paragraph 84, it is also possible to imply more than two MIMs and more than two display electrodes for constituting one pixel.

D2 relates to a double diode panel for LCD devices comprising a reflective and a transmission electrode in each pixel and to a method of manufacturing therefore. In addition to gate lines a reset line is provided which is connected to one of the two MIMs in each pixel.

D3 also discloses a TFD panel comprising two MIMs and a reflective display electrode in one pixel. This electrode forms a ring structure in a crossing part with the insulation film of the MIM and the signal or gate line and also forms a ring structure in a crossing part with the first conductive film of the MIMs.

However, none of the cited references discloses a TFD panel with an transmission electrode and a reflective electrode comprising one to fourth MIM diodes where at least one these diodes has a different current-voltage characteristic from the others as claimed in independent claim 1 of the present application. Also none of the references discloses such a TFD panel comprising floating electrodes which form overlapping regions with contact portions of the reflective and transparent electrodes as claimed in independent claim 5 of the present application. These features are also not rendered obvious by any one of the cited references.

Hence, the subject matters of independent claims 1 and 5 and of dependent claims 2-4, 6-9 are considered new and to involve an inventive step.